Amendments to the Drawings

Figs. 4A, 4D and 7 have been amended as suggested by the Examiner.

Attachment: Replacement Sheet

Annotated Marked-Up Drawings

REMARKS

In response to the Office Action mailed August 30, 3007, Applicant respectfully requests reconsideration. Claims 1-3,5-19-21-40 and 42-47 were previously pending in this application. No Claims have been canceled or amended and no new claims have been added. As a result, Claims 1-3, 5-19, 21-40, and 42-47 are currently pending for examination with Claims 1, 17, and 37-39 being independent. The application is believed to be in condition for allowance.

Objections to the Drawings

The Office Action objects to Figs. 4A, 4D, and 7 for various informalities. Figs. 4A, 4D, and 7 have been amended as was suggested by the Examiner. Accordingly, withdrawal of the objection to the drawings is respectfully requested.

Objections to the Specification

The Office Action has objected to the specification for the introduction of new subject matter by way of an amendment filed July 16, 2007. The specification has been amended on page 10, lines 17-28, to clarify that the narrow band detection filters are included in the processor. Such amendments are in accordance with the specification on page 22, lines 12-15, as originally filed. Accordingly, withdrawal of the objection to the specification is respectfully requested.

Rejections Under 35 U.S.C. §103

The Office Action rejects Claims 1-3, 6-19, 22, 24-40, and 43-47 under 35 U.S.C. §103(a) as being unpatentable over Wong et al., U.S. Patent No. 5,062,703 (Wong), in view of Verhoof et al., European Patent Application No. 0 560 426 A1 (Verhoof), and further in view of Tomofuji et al., U.S. Patent No. 5,383,046 (Tomofuji). The Office Action also rejects Claims 5, 21 and 42 under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Verhoof, Tomofuji, and further in view of Akiyama et al., U.S. Patent No. 5,982,530 (Akiyama) and So et al., "Measuring Chromatic Dispersion and Modal Interference with an Optical Time-Domain Reflectometer" (So). The Office Action also rejects Claim 23 under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Verhoof, Tomofuji, and further in view of Lemus et al., U.S. Patent No. 6,111,676 (Lemus). Applicants respectfully traverse these rejections.

Remarks Regarding the Claims:

Claim 1 recites "...sweeping the pilot tone across a frequency range; detecting amplitudes and phases *of the pilot tone* along a forward path *and a reflected path* of the optical transmission path; [and] *determining dispersion* in at least a portion of the optical transmission path based on the detected amplitudes and phases...." Applicants note that the remaining independent Claims 17 and 37-39 also include the above highlighted elements.

Remarks Regarding the Cited References:

Wong illustrates a lightwave component measurement system that provides modulation measurements with the use of digital signal processing (abstract). In Fig. 2, Wong describes obtaining transmission and reflection characteristics of *a device under test* using a lightwave component analyzer 12 that is capable of generating a swept signal. Wong also describes using single and multiple signal reflections to *determine the location* of one or more discontinuities in an optical fiber cable length (Col. 6, lines 24-28). In column 6, lines 4-7 (relied upon by the Office Action), Wong also describes that the measurement system may be used for measuring *pulse* dispersion of lightwave system components, such as modulators, demodulators, optical fiber cables, and fiber optic components, *based on modulation measurements*.

Verhoof illustrates a method and apparatus for determining fault locations in a local optical network (abstract). Verhoof does not teach or suggest dispersion compensation.

Tomofuji illustrates a supervisor and control signal transmitting system for use in an optically amplifying repeater system, amplifying attenuated light, and transmitting data over a long distance between a transmitting station and a receiving station through a polarity of repeaters (abstract). Tomofuji does not teach or suggest dispersion compensation.

Akiyama illustrates an apparatus for driving an optical modulator to measure, and compensate for, dispersion in an optical transmission line (abstract). In the device of Akiyama, a processor determines the amount of dispersion in a transmission line by comparing a time interval between first and second *detected pulses* to the time interval of the first and second *pulses before transmission* (abstract).

So illustrates an apparatus for measuring chromatic dispersion based on *pulse signals* (page 2110, under the subheading "Chromatic Dispersion," second paragraph).

Lemus illustrates a method for detecting reflections in bidirectional multichannel communication systems by using a signature attached to each signal (abstract). Lemus does not teach or suggest dispersion compensation.

Applicants respectfully assert that a combination of the above discussed references would likely result in a system configured to determine a *pulse* dispersion based on measuring *pulse* signals in a *forward path* only (as taught by Wong, Akiyama, and So).

While Wong does disclose the utilization of swept signal and obtaining measurements from a reflected path, this is done *solely* for obtaining reflection characterizes of a device under test and determining the location of one or more discontinuities in an optical fiber cable length.

Remarks Regarding the Office Action's Response to Arguments filed July 16, 2007

In the Response to Arguments Sections, with regards to the amendment filed July 16, 2007, the Office Action states two reasons for maintaining the rejections under 35 U.S.C. §103(a).

First, the Office Action states that since Wong teaches determining reflected characteristics of a device under test, the entire system may be characterized as being able to determine pulse dispersion by impliedly utilizing measurements from a reflected path.

Second, the Office Action states that since Wong teaches the use of a swept signal in determining characteristics of a device under test, the entire system may be characterized as being able to determine pulse dispersion by impliedly utilizing a swept signal. Applicants respectfully disagree.

Wong *only* describes the use of measuring signals of a reflected path in regards to obtaining reflection characteristics from a device under test, and with regard to determining a location of one or more discontinuities in an optical fiber. Wong then goes on to explain that the disclosed system may also be used to measure a *pulse* dispersion of the lightwave system components (e.g., modulators, demodulators, optical fiber cables, and fiber optic components) but *not* the device under test. *Wong does not teach or suggest using a swept signal or measurements from a reflected path to determine pulse dispersion.* Furthermore, it is well known in the art that pulse dispersion describes the broadening of a *pulse*, not a swept signal, by the time it reaches a receiving end.

The Claims Distinguish Over the Prior Art of Record Taken Individually or in Any Combination:

Applicants respectfully assert that none of the prior art references cited in the record teach or suggest determining a dispersion in at least a portion of the optical transmission path based on detected amplitudes and phases of *a swept pilot tone signal*, where the detected amplitudes and phases are obtained from a forward path *and a reflected path.* The cited prior art of record instead teaches away from the claimed invention by teaching methods of determining dispersion by evaluating measurements obtained in a forward path only. The prior art of record further teaches away from the claimed invention by teaching methods of determining dispersion by using *pulse* signals, not a swept frequency signal. In contrast, the claimed invention determines dispersion via a measured (in a forward *and reflected* path) swept frequency signal (not a pulse).

Thus, Claim 1 is patentably distinct from the prior art of record, taken individually or in any combination. Claims 2, 3, 5-16, and 46 depend from Claim 1 and therefore patentably distinguish over the prior art of record for at least the same reasons.

Independent Claim 17 (from which Claims 18, 19, 21-36 and 47 depend) and Independent Claims 37, 38, and 39 (from which Claims 40 and 42-45 depend) also include the elements of "determining dispersion in at least a portion of the optical transmission path based on the detected amplitudes and phases [*of a swept pilot tone signal,*]" where the detected amplitudes and phases are obtained from a forward path *and a reflected path.* As should be appreciated from the above remarks relating to Claim 1, the prior art of record does not teach or suggest the above mentioned elements. Thus, Claims 17-19, 21-40, and 42-47 patentably distinguish over the prior art of record for at least the same reasons as mentioned in relation to Claim 1. Accordingly, withdrawal of these rejections is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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